



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,380	12/12/2003	Satchidanand Mishra	D/A2582 XERZ 2 00610	9765

7590 08/30/2005

RICHARD M. KLEIN, ESQ.  
FAY, SHARPE, FAGAN, MINNICH & McKEE, LLP  
SEVENTH FLOOR  
1100 SUPERIOR AVENUE  
CLEVELAND, OH 44114-2579

EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
----------	--------------

1756

DATE MAILED: 08/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/734,380

Applicant(s)

MISHRA ET AL.

Examiner

Janis L. Dote

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/12/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 1756

1. The examiner acknowledges the cancellation of claims 10-20 and the amendments to claims 1, 5-8, and 21 set forth in the amendment filed on Feb. 11, 2005. Claims 1-9 and 21 are pending.

The "Amendment to the specification" section filed on Jun. 17, 2005, has been entered.

2. The "Amendment to the specification" section filed on Feb. 11, 2005, did not comply with 37 C.F.R. 1.121 for the reasons discussed in the "Notice of Non-compliant Amendment" mailed on May 23, 2005. Accordingly, that "Amendment to the specification" section was not entered.

3. The examiner did not initial the reference US 4,306,008 (Pai et al.) listed on the form PTO-1449 filed on Dec. 12, 2003. A copy of the initialed form PTO-1449 is attached to this office action. The examiner crossed out the other references listed on said copy because they have been already considered as set forth in the form PTO-1449 mailed on Dec. 8, 2004.

4. The oath or declaration filed on Feb. 11, 2005, is acceptable.

Art Unit: 1756

5. The objection to the specification set forth in the office action mailed on Dec. 8, 2004, paragraph 5, item (1), has been withdrawn in response to the amended paragraphs beginning at page 2, line 7; page 3, line 8; page 5, line 1; page 6, line 12; and page 12, line 22, of the specification, set forth in the amendment filed on Jun. 17, 2005.

The objections to the specification set forth in the office action mailed on Dec. 8, 2004, paragraph 6, have been withdrawn in response to the amendments to claims 1 and 21 and the cancellation of claims 13 and 20 set forth in the amendment filed on Feb. 11, 2005.

The objections to the claims 1, 17, 18, and 21, set forth in the office action mailed on Dec. 8, 2004, paragraph 7, have been withdrawn in response to the amendments to claims 1 and 21 and the cancellation of claims 17 and 18 set forth in the amendment filed on Feb. 11, 2005.

The rejections of claims 1-21 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on Dec. 8, 2004, paragraph 9, have been withdrawn in response to the amendments to claims 1, 5, and 21 and the cancellation of claims 10 and 18-20 set forth in the amendment filed on Feb. 11, 2005.

Art Unit: 1756

The rejections of claims 1-21 under 35 U.S.C. 112, second paragraph and the first paragraph, set forth in the office action mailed on Dec. 8, 2004, paragraphs 10 and 12, respectively, have been withdrawn in response to the amendments to claims 1 and 21 and the cancellation of claims 10-20 set forth in the amendment filed on Feb. 11, 2005.

The rejections under 35 U.S.C. 102(b) of claims 10, 12-18, and 20 over US 5,401,615 (Pai'615), and of claims 10, 11, 13-15, 17, and 20 over US 2002/0106570 A1 (Kami), set forth in the office action mailed on Dec. 8, 2004, paragraphs 16 and 19, respectively, have been mooted by the cancellation of claims 10-18 and 20 set forth in the amendment filed on Feb. 11, 2005.

The rejections under 35 U.S.C. 103(a) of claims 1-6, 8, 10, 19, and 21 over Pai'615 combined with US 6,338,927 B1 (Inagaki), of claims 7 over Pai'615 combined with Inagaki and the other cited reference, and of claims 1-4, 8, 9, 10, 19, and 21 over Kami, as evidenced by Pai'615, combined with Inagaki, set forth in the office action mailed on Dec. 8, 2004, paragraphs 17, 18, and 20, respectively, have been withdrawn in response to the cancellation of claims 10 and 19 and the amendments to claims 1 and 21 set forth in the amendment filed on Feb. 11, 2005. The amendments to claims 1 and 21 add the limitation that "at least

Art Unit: 1756

one" of the groups R1 to R6 in Formula II is halogen. None of the cited prior art teaches or suggests charge transport compounds represented by Formula II recited in the instant claims. In particular, Inagaki teaches charge transferring asymmetric diamine stilbene compounds that meet the chemical structure of Formula II but for the presence of halogen substituents. See Inagaki, formula (1) at col. 2, lines 29-61, and compound I-19 in Table 1 at col. 13. Inagaki teaches that the substituent groups R1 to R24 in formula (1) represent "an optionally substituted alkyl group, an optionally substituted alkoxy group, an optionally substituted aryl, an optionally substituted aralkyl group, a hydrogen atom, or a nitro group. Col. 2, lines 51-55.

The rejection of claims 10, 11, 13-18, and 20 under 35 U.S.C. 102(e) over US 2004/0126685 (Horgan) set forth in the office action mailed on Dec. 8, 2004, paragraph 21, has been mooted by the cancellation of claims 10, 11, 13-18, and 20 set forth in the amendment filed on Feb. 11, 2005.

The rejections under the judicially created doctrine of obviousness-type double patenting of claims 10, 11, 13-18, and 20 over claims 1-24 of U.S. Patent No. 6,780,554 B2 (Tong), of claims 10, 11, 13-18 and 20 over claims 21-31 of copending Application No. 10/737,545, and of claims 10-18 and 20 over

Art Unit: 1756

claims 1-42 of copending Application No. 10/736,864, set forth in the office action mailed on Dec. 8, 2004, paragraphs 23-25, respectively, have been mooted by the cancellation of claims 10-20 set forth in the amendment filed on Feb. 11, 2005.

6. Applicants have not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The provisional application 60/433,886 (Application'886), filed on Dec. 16, 2002, does not provide an adequate written description of the subject matter recited in the instant claims for the following reasons:

Art Unit: 1756

(1) Application'866 does not define the substituents R1 to R6 in Formula (II) recited in instant claims 1 and 21. See Application'866, pages 5 and 29.

(2) Application'866 does not disclose the compound N,N'-diphenyl-N,N'-bis(4-methylphenyl)-[1,1'-biphenyl]-4,4'-diamine recited in instant claims 1, 6, 7, and 21. Application'866, pages 4, 5, 28, and 29.

(3) Application'866 does not disclose the amount "about 20 to about 45 weight percent" (emphasis added) of the diamine charge transport compound based on the total weight of the second charge transport layer recited in instant claim 2. Application'866, page 5, lines 20-21, page 15, line 21, page 24, lines 13-14, and page 27, lines 11-12, discloses the amounts of about 30 to about 40 percent by weight, about 25 to about 45 percent by weight, about 30 to about 35 percent by weight, and about 30 to about 45 percent by weight, based on the weight of second charge transport layer.

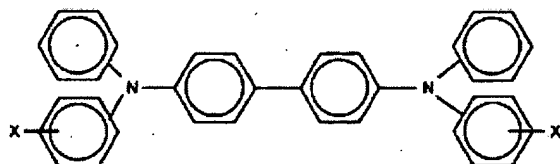
(4) Application'866 does not disclose the amount "about 50 to about 70 weight percent" (emphasis added) of the organic charge transport compound based on the total weight of the first charge transport layer recited in instant claim 3. Application'866, page 15, lines 15-16, and page 27, lines 8-9, discloses the amounts of about 30 to about 80 percent by weight



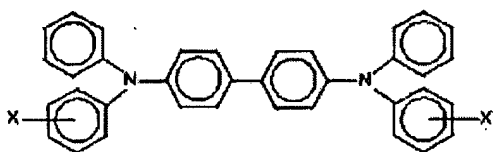
Art Unit: 1756

and about 45 to about 55 percent by weight based on the weight of first charge transport layer.

(5) Application'866 does not disclose Formula (I)



where X is methyl, recited in instant claim 5. Application'866 teaches the following formula at page 15, lines 14-16,



where x is alkyl, hydroxy, or halogen.

Accordingly, the subject matter recited in instant claims 1-9 and 21 is accorded the filing date of Dec. 12, 2003.

7. The disclosure is objected to because of the following informalities:

(1) The use of trademarks, e.g., Teflon [sic: TEFLON] in the amended paragraph beginning at page 25, line 6, of the specification, set forth in the amendment filed on Jun. 17, 2005, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive.

Art Unit: 1756

Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

(2) The bonds that link the N atom and phenylene group and the phenylene and -CH=CH- on the left side of the chemical formula (II) are not drawn as being directly attached to the 1 and 4 positions of the phenylene group. See the amended paragraphs beginning at page 7, line 9; page 19, line 18; and page 31, line 14, of the specification, set forth in the amendment filed on Jun. 17, 2005. The bonds should be drawn so that that they are clearly attached to the 1 and 4 positions of the phenylene group.

Appropriate correction is required.

Applicants' arguments filed on Feb. 11, 2005, with respect to the objection in item (1) above have been fully considered but they are not persuasive.

Applicants assert that the amendment to the specification overcomes the objection. However, for the reasons discussed above, the amendment to the specification filed on Jun. 17,

Art Unit: 1756

2005, did not capitalize all the trademarks disclosed in the instant specification. Accordingly, the objection stands.

8. Applicants are advised that should claim 6 be found allowable, claim 7 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim.

See MPEP § 706.03(k).

9. Claims 1 and 21 are objected to because of the following informalities:

The bonds that link the N atom and phenylene group and the phenylene and -CH=CH- on the left side of the chemical formula (II) are not drawn as being directly attached to the 1 and 4 positions of the phenylene group. The bonds should be drawn so that that they are clearly attached to the 1 and 4 positions of the phenylene group.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1756

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is indefinite in the phrase "a bisphenol A polycarbonate selected from the group consisting of . . . and poly(4,4'-diphenyl)-1,1'-cyclohexane carbonate." Poly(4,4'-diphenyl)-1,1'-cyclohexane carbonate is outside the scope of the term "bisphenol A polycarbonate" because it does not comprise a bisphenol A moiety. Poly(4,4'-diphenyl)-1,1'-cyclohexane carbonate is also known in the art as bisphenol-Z-polycarbonate. See Pai'615, col. 10, lines 9-20. As noted by applicants in their response at page 25, line 27, "there is no such thing as a 'Bisphenol A Z-type polycarbonate resin.'"

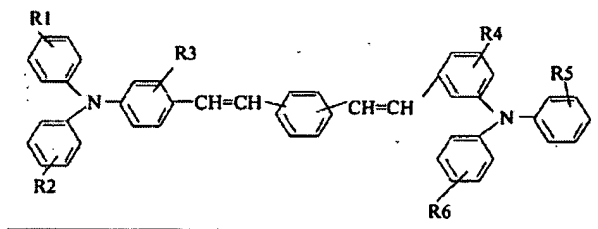
12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1756

13. Claims 1-9 and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Instant claims 1 and 21 recite a second charge transport layer comprising the charge transport compound represented by Formula (II):

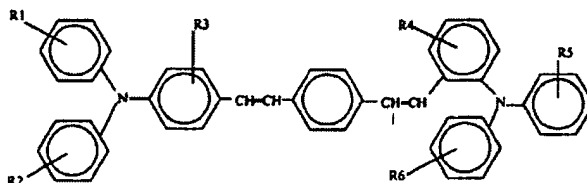


where the groups R1 to R6 are independently selected from the group consisting of hydrogen, halogen, alkyl, aryl, and a cycloalkyl group having 1 to 18 carbon atoms, and at least one of the groups R1 to R6 is halogen. The -CH=CH- is substituted at the meta (i.e., 3) position of the phenyl group bonded to the N atom in the triphenylamine moiety.

The originally filed specification does not provide an adequate written description of said compound. The originally filed specification at page 7, lines 20-25, page 20, lines 1-4,

Art Unit: 1756

and page 31, lines 20-24, discloses the charge transport compound as shown below:



where the groups R1 to R6 are independently selected hydrogen, halogen, alkyl, aryl, or a cyclo-alkyl group having 1 to 18 carbon atoms. The -CH=CH- is substituted at the ortho (i.e., 2) position of the phenyl group bonded to the N atom in the triphenylamine moiety. The originally filed specification at page 1, lines 3-5, claims priority to U.S. Provisional Application Serial No. 60/433,886 (Application'886) filed on Dec. 16, 2002, "the disclosure of which is totally incorporated herein." Application'866 discloses the chemical formula (II) that is now recited in the instant claims. See Application'866, pages 5 and 29. However, Application'866 does not define the groups R1 to R6 in the formula. Accordingly, neither the originally filed specification nor Application'866 provides an adequate written description of the chemical formula (II) as recited in instant claims 1 and 21.

14. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS**

Art Unit: 1756

**ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (571) 203-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD  
Aug. 26, 2005

*Janis L. Dote*  
JANIS L. DOTE  
PRIMARY EXAMINER  
GROUP 1500  
1700